

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Before the Board of Patent Appeals and Interferences

In re the Application

Inventor : Johnson, M.T.  
Application No. : 10/569, 173  
Filed : February 22, 2006  
For : **Method for Controlling Pixel Brightness  
in a Display Device**

**REPLY BRIEF**

**On Appeal from Group Art Unit 2629**

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Date: February 11, 2011

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**I. REAL PARTY IN INTEREST**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

**II. RELATED APPEALS AND INTERFERENCES**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

**III. STATUS OF CLAIMS**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

**IV. STATUS OF AMENDMENTS**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

**VI. GROUND FOR REJECTION TO BE REVIEWED ON APPEAL**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

## **VII. ARGUMENT**

### **I. Rejection of claims 1-5, 7, 9 and 11-13 under 35 USC §102**

In response to the arguments provided in the Examiner's Answer (EA), dated December 20, 2010, Appellant respectfully submits that the EA fails to show that the cited reference includes all the elements recited in the independent claims.

The EA maintains that the subject matter claimed is disclosed by the cited reference and in particular the element of "wherein the first and second levels of brightness and associated sub-periods are selected so that the time averaged sum of said brightness levels of said pixels within said at least one subset is substantially equal to said overall brightness level of said image " (see EA, page 9, section 10).

The EA further states, "[f]irst, Appellant's attention is drawn to lines 4-6 of claim 1, specifically the recitation 'a controller for distributing said data signal over said display pixels to generate an image of said display with **an overall brightness value of each display pixel** during at least one frame period' (emphasis in original). Lines 12-15 of claim 1 further recite 'wherein the first and second levels of brightness and associated sub-periods are selected so that the time averaged sum of said brightness levels of said pixels within said at least one subset is substantially equal to **said overall brightness level of said image.**' (emphasis in original) (see EA, page 9-10, section 10).

The EA asserts that "the first recitation above deals with an image with an overall brightness value for each pixel, while the second recitation is directed to an overall brightness level of the image. In other words, no overall brightness level of said image is claimed, only an overall brightness value for each display pixel."

The EA further states "as is currently claimed, no distinction is made between an initial overall brightness value for each display pixel (i.e., an overall brightness value generated before said frame period is divided into a first and second sub-periods ...) and a final overall brightness value for each display pixel ... In other words, as is currently claimed, "an overall brightness value for each display pixel (see claim 1, line 5) can represent either an initial brightness value before the frame period is divided or a final brightness value after the frame period is divided. Thus the Examiner is interpreting 'an overall brightness value for each display pixel' as the brightness value achieved after the frame period is divided into a first and second sub-period with first and second non-zero brightness levels." (see EA, page 10, first full paragraph).

In addition, the EA introduces a potential new rejection under 35 USC 112, second paragraph, in that the term "known ratio" in claims 1 and 12 is unclear in what capacity the ratio is to be "known."

Appellant respectfully disagrees with the Examiner's interpretation of the subject matter claimed.

Claim 1 recites, in relevant part:

1. (Previously presented) Active matrix display device (6) comprising:

a display (2) with a plurality of display pixels (3);  
a data input (10) for receiving a data signal;  
a controller (7) for distributing said data signal over said display pixels (3)  
**to generate an image on said display (2) with an overall brightness value  
for each display pixel (3) during at least one frame period (F),**

wherein said device (6) is adapted to divide said frame period (F) ... such  
that said display pixels (3) ... have at least a light output (L) at a first non-zero  
brightness level (L1) during a first sub-period (F1) of said frame period (F) and at  
a second non-zero brightness level (L2) during a second sub-period (F2) of said  
frame period (F), wherein the first and second levels of brightness and  
associated sub-periods are selected **so that the time averaged sum of said  
brightness levels (L1,L2) of said pixels ... is substantially equal to said  
overall brightness level of said image**, said second level being maintained [at]  
a stable level during the second sub period and the first and second levels being  
in a known ratio.

Thus, claim 1 teaches a controller for generating an image with an overall  
brightness value, which is represented by the brightness value of each pixel in  
the display, and the time averaged sum of said brightness levels (L1, L2) of each  
pixel is substantially equal to the overall brightness level of the image.

In maintaining the rejection of the claims, the Examiner's Answer asserts  
that the claims fail to refer to an initial and a final brightness level. However, the  
claims refer to **"an image ... with overall brightness value ..."** and that **"the  
time average sum of ... said brightness level of said pixels ... is substantially  
equal to said overall brightness level."**

Thus, the claims refer to one brightness value or level; that of the image. Thus, there is no need for an initial brightness level and a final brightness level as there is only one brightness level being considered.

However, this is contrary to the teaching of Aoki, wherein there is an initial brightness level and a final brightness level, where the final brightness level (i.e., the level that is subsequently achieved) is brighter than the initial brightness level or value. See Aoki, para. 0059, "Comparing brightness  $\Sigma$  of one frame ,, with that of the pseudo impulse method, since  $\Sigma$  is calculated as below, wherein brightness of the antecedent frame is C and the attenuation coefficient is F

$$\Sigma = (C + C/F)C."$$

And para. 0060 "assuming that C=1 and F=4, then  $\Sigma = 1.25$ . That is to say, **brightness of one frame of the first embodiment is higher than the conventional pseudo impulse method by 25%.** " (emphasis added).

Hence, Aoki discloses that each individual pixel may, for example, be 25 percent brighter and, thus, the brightness level of the image (i.e., the overall brightness value) is 25 percent greater than the original (or initial) image brightness value.

Aoki fails to disclose the claim element **an image ... with overall brightness value ...** and that "the time average sum of ... is **substantially equal to said overall brightness level.**"

In addition, the EA interprets the term "an image on said display with an overall brightness value for each display pixel (3) during at least one frame period

(F)," as being different than the term "the time average sum of ... said brightness level of said pixels ... is **substantially equal to said overall brightness level.**"

However, brightness level of an image is dependent upon the brightness value (level) of each pixel element that composes the image. Thus, the term "the time average sum of ... said brightness level of said pixels ... is **substantially equal to said overall brightness level,**" refers to the brightness value of each pixel to achieve an "overall brightness of the image."

Accordingly, Appellant submits that the interpretation of an initial and a final brightness level or value for the image is incorrect and that Aoki fails to teach a system that satisfies the claim element "the time average sum of ... said brightness level of said pixels ... is **substantially equal to said overall brightness level.**"

With regard to the EA's assertion that the term "known ratio" is indefinite, Appellant respectfully disagrees.

Interpretation of the claims must also be consistent with the interpretation that one of ordinary skill in the art would reach. See *In re Cortright*, 165 F.3d 1353, 1359, MPEP 2111.

In this case, the interpretation of the term "known ratio," would be understood by those skilled in the art based on the need to satisfy the claim element "the time average sum of ... said brightness level of said pixels ... is **substantially equal to said overall brightness level.**" That is, the time average sum of the brightness levels of the two sub-frames requires that the levels be adjusted so that when combined the overall brightness level is achieved. The



ratio may be determined based on the voltage levels and/or the sub-frame times as the brightness level of each sub-frame is dependent upon the voltage level and within an associated sub-frame time. Thus, by appropriately adjusting the sub-frame times, for example, and the corresponding voltage levels (see Fig. 2), then the ratio of the brightness levels is determined or known.

Hence, Appellant submits that a "known ratio" of brightness levels may be achieved without undue experimentation and, hence, is not indefinite.

Appellant submits that arguing that the term "known ratio" is not definitive is an overreach of interpreting the subject matter claimed to support the rejection of the claims.

For the remarks made herein, in response to the remarks and assertions made in the Examiner's Answer, Appellant submits that Aoki cannot anticipate the subject matter recited in the independent claims, and the claims dependent therefrom, as Aoki fails to disclose at least the element of "the time average sum of ... said brightness level of said pixels ... is **substantially equal to said overall brightness level.**"

## **2. Rejection of claims 6, 8 and 10 under 35 USC §103(a)**

### **Claims 6, 8 and 10 Depend From an Allowable Base Claim**

Claims 6, 8 and 10 depend from independent claim 1, which has been shown to include subject matter not disclosed by Aoki.

Koyama fails to provide any teaching regarding the claim element "the time average sum of ... said brightness level of said pixels ... is **substantially**

**equal to said overall brightness level"** that would correct the deficiency found to exist in independent claim 1 and, consequently, in the aforementioned dependent claims.

Appellant respectfully submits that claims 6, 8 and 10 are allowable at least for their dependence upon an allowable base claim.

In view of the above, Appellant submits that the above referred-to claims are patentable over the teachings of the cited references.

### **VIII. CONCLUSION**

In view of the above analysis, it is respectfully submitted that the referenced teachings, whether taken individually or in combination, fail to render obvious the subject matter of any of the present claims. Therefore, reversal of all outstanding grounds of rejection is respectfully solicited.

Respectfully submitted,  
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**IX. CLAIMS APPENDIX**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

**X. EVIDENCE APPENDIX**

Reference is made to the statements made in Appellant's Appeal Brief and Examiner's Answer.

**XI. RELATED PROCEEDING APPENDIX**

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